3.0 LARGE FORMAT PHOTOGRAPHY

3.1 INTRODUCTION

The following specifications cover equipment, films, processing, subjects and composition, photograph identification and submission of record photographs to HAER. Instructions to HAER teams for completing an Index to Photographs, and for numbering large format negatives and prints for transmittal to the Library of Congress are found in sections 3.8 and 3.9.

Photography is a vital component in the documentary record of American industrial heritage. Photographs capture clearly and concisely visual form, structure, and detail that cannot be effectively recorded by the written word, or economically documented by drawings. Photography provides fast and effective coverage of the existing conditions of a historic site. Large format photographs taken for a HAER project are transmitted to the Library of Congress along with the project's written history and measured drawings. HAER photographs are in the public domain and cannot be copyrighted. Issues raised by photocopying existing photos and drawings are addressed below.

Large format photography is defined in Section III of the *Secretary of the Interior's Standards for Architectural and Engineering Documentation* as photographs having negatives 4" x 5" or larger. Smaller formats such as 2 " x 2 " are not acceptable for submission to HAER as *record* photographs except in particular circumstances (they are admissible as field photographs--see *Transmitting HABSIHAER Documentation* for further guidance). Image resolution, perspective correction and archival handling are the reasons for these specifications. A properly focussed and exposed large format negative contains much more information and much finer detail than any 35mm negative. The sharper images achieved by large format photographs meet the *Secretary's Standards* for accuracy (Standard II) and clarity (Standard IV) better than smaller formats. The complete perspective correction controls provided by large format cameras minimize distortions such as keystoning, which helps photographs meet Standards II and IV. Large format negatives are also much easier to number, store and handle as *individual* images than small formats (which usually must be stored as film strips for use in an enlarger.)

No matter how technically good negatives may be in meeting Standards II to IV, it is in vain if the images do not meet Standard I by capturing the valuable aspects and features of a site which make it historic in the first place. It is vital that photographers consult the HAER team and obtain shoot lists or completed "Photographic Services Request" forms.

Large format photography is required for Levels I, II, and III as defined in the *Secretary's Standards*. The difference among the levels is due to the significance of the resource. The higher the significance (Level I) the more photos will be taken, the lower the significance (Level III), the fewer.

3.2 EQUIPMENT

The camera used must be a large-format view camera, no smaller than 4" x 5", no larger than 8" x l0", having all features necessary for perspective and focus corrections, including bubble levels; 5" x 7" *is the preferred format.*

No soft focus lenses should be used; Standards II and IV for accuracy and clarity rule these lenses out. You should have at least one lens of normal focal length, plus a wide angle and telephoto lenses. View camera lenses must have adequate covering power to accommodate both front and rear camera movements without vignetting. Aerial camera lenses should not be less than normal focal length. Filters are the photographer's choice.

3.3 TECHNICAL INFORMATION

Most documentary images produced for HAER are black and white. For site photography, any fine grain continuous-tone cut (sheet) film may be used which has a minimum resolving power no less than 80 lines per millimeter high-contrast range and 32 lines per millimeter low contrast range, such As a Tri-X, Royal Pan, Plus-X, Panatomic, and T-Max 400 or 100. ***No film packs.***

Kodak Professional Copy Film 412.5 or equivalent must be used for making continuous tone copies of photographs and graphics with colors and/or gray tones. It may be used for line drawings, but is not preferred unless contrast is poor. A polar-screen filter is recommended.

Copies of line drawings or other graphics where colors and gray tones are absent must be made using Kodalith film or equivalent. 8"xlO" negatives are preferred. Opaquing, ruby taping and other forms of masking and touch-up are not permitted since these substances are not archivally stable.

> *WARNING:* To meet Standard II, a view camera should not be used to copy scale drawings. Scale drawings should be submitted to a repro-graphics firm with a lithographic copy camera designed to copy scaled work without distortions.

Large format color transparencies are sometimes taken for HAER to be used in publications, these images are being transmitted to the Library of Congress as part of a project's permanent photographic record. However, these are exceptions because of the inherent instability of color images.

3.4 ACCEPTABLE PRINTS

All prints shall be glossy on single-weight, fiber-based paper in order to meet Standard III; ***RC (resin coated) paper or other bases will not be accepted.***

Contact prints, made with black (bleed) margins of the entire sheet of film to reveal all details in the picture area plus the clear film margin (no washed-white margins). Multiple copies may be required.

3.5 ARCHIVAL PROCESSING

Film and prints are intended to last 500 years. All film and prints shall be processed according to manufacturers' specifications, using fresh chemistry. Each step in the development process must be thoroughly completed with recommended agitation. (Developer should be replenished according to manufacturers' specifications, including limitations.)

All film and prints must be thoroughly washed or treated in a hypo-clearing bath (such as Permawash, Heico, Inc., Delaware Water Gap, Pennsylvania, or equivalent) in order to remove all traces of processing chemicals.

Film must be washed for two minutes before a l-minute soak in hypo-clearing bath, followed by a 5-minute wash with minimum agitation. If a hypo-clearing bath is not available, film shall be washed for at least 2 hours in running water.

Procedure for treating prints in a hypo-clearing bath will be similar to film, however, photographers should test prints to find the most effective wash and treatment times. These will vary tremendously due to the variety of print washers and local water chemistry. If a hypo-clearing bath is not available for prints, wash them for at least 24 hours in running water.

After processing, film and contact prints should be tested periodically for traces of residual hypo (sodium thiosulfate). Visible levels above comparison patch #l of the standard Kodak Hypo Estimator Scale (Kodak publication J- 11) used with test kit (Kodak Cat. No. 196-5847) is cause for rejection of film and/or prints. Tests are only accurate if performed within 24 hours of processing.

> *WARNING!* Negatives and prints with visible hypo stains, poor focus, scratches or other defects will be rejected.

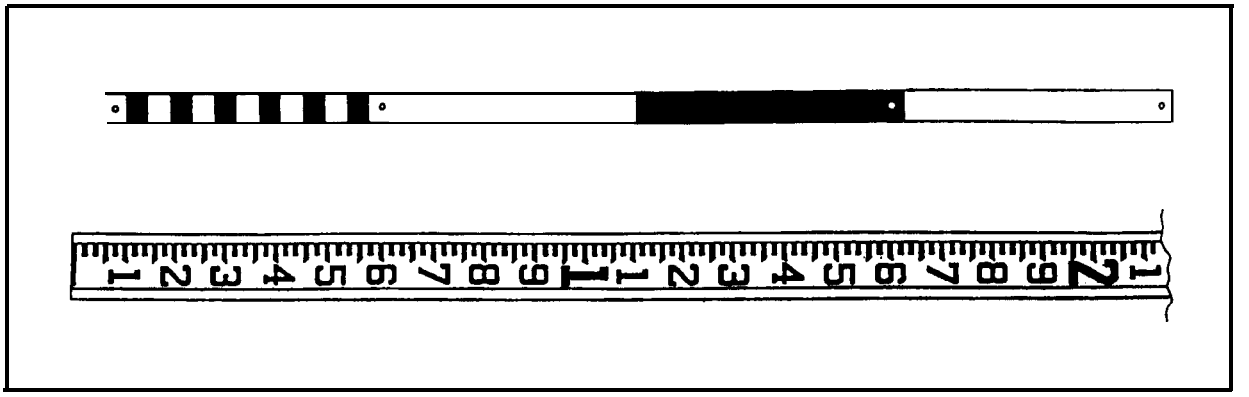

Fig. 3.1
Photo scale (top), surveyor's stadia rod (bottom)

3.6 TECHNICAL INFORMATION

Aesthetic considerations are necessary but secondary. No vital features shall be cropped out or hidden by vegetation or fixed features unless this is unavoidable. Undesirable intrusions such as trash barrels, litter, bicycles, automobiles, and the like should be removed or concealed. If possible, cut and remove insignificant vegetation.

Focus

All areas of a photographs must be in razor-sharp focus to meet Standards II and IV, regardless of the level of documentation being conducted. The use of a magnifier is strongly recommended for focussing the camera.

Perspective Correction

All views shall be perspective corrected to within 1 degree. That is, views shall be one- or two-point perspectives, with no vertical convergence or "keystoning". Accurate bubble levels on lens and film planes will speed adjustments. In some cases, oblique or three-point perspectives will be unavoidable or even necessary in order to record significant features or their interrelationships at a site.

Scale Sticks

For Level I coverage, duplicate views of primary significant features (as opposed to overall views) must be taken with a scale stick in the field of view in order to meet Standard II. A minimum of one view with a scale stick is required for Level II or Level III coverage. For general views, the stick should be 10 feet in length if possible, and at least 1 inches wide, painted in alternate black and white areas of one foot each; the last 12 inches should be similarly divided into one inch black and white stripes. There is no prohibition or requirement for additional use of a metric scale. A less legible but acceptable scale stick is an extendable surveyor's stadia rod (see Fig. 3.1 for scale stick examples).

The scale stick should be positioned vertically or horizontally against the structure in a position easily visible and legible to the camera. Smaller scales 4 feet, 2 feet, and 1 foot in length may be valuable in detail views where no ready reference for scale exists. In any case, the scale stick shall be in focus and not obscure or confuse what is being recorded.

Exposures

Negatives must be correctly exposed. Thin or dense negatives may be rejected for failure to meet Standards II and IV.

Lighting

Sunlight is preferred for exteriors, however, light overcast days may provide more satisfactory lighting at times. Flash units or reflectors may be needed to cast light into shadowed areas. Interiors should be illuminated to reveal detail in shadows.

CAUTION: Always check for usound structure and flammable conditions before setting up.

Every effort should be made to make photocopies in a studio under controlled conditions using polarized light. The copying of scaled drawings where preservation of scale and proportion are important should only be made by a reprographics firm with a lithographic copy camera. .

WARNING! Photocopying of copyrighted material is prohibited unless written waivers to all rights are obtained from copyright owners and put on record with HAER.

3.7 **VIEWS**

General exterior and interior survey views are required for Levels I, II and III. Additional views covering significant details are required to meet Standard I for documentation at Levels I and II. Examples of such details include structural connections of bridges, primary machinery in factories and production processes, significant architectural details, and remains of demolished features. When photographing industries with historic operations, try to frame your views to encompass machinery or buildings between which work and materials flow, whether by conveyors, pipelines, railways, or other means. This will help better interpret the site to viewers. Significant steps in a production process, particularly where they involve historic machinery and buildings, should be covered. Give consideration to showing civil engineering structures in use (e.g., trains on bridges, ships in canals or locks) where usage highlights their function and doesn't obscure important details. Moveable structures, such as swing or bascule bridges, should be shot in open and closed positions if possible.

Aerial views may be required to better record site conditions and relationships. If not using a cherry picker or other ground-based camera station, a helicopter or other suitable aircraft must be used at altitudes of 150 to 500 feet. Minimum format for aerial photographs is 4"x5". Standard black-and-white aerial film, *archivally processed,* is acceptable. A yellow or orange (G) filter is recommended for reducing haze effects.

In many cases, your choice of views will have already been specified by a HAER team which is familiar with the site and its historic features. A list of desired photos will be transmitted to you on a "Photographic Services Request" form. (See Fig. 2.1 for a blank example. Instructions on the back of the form apply to the requester, not the photographer.)

3.8 SUBMITTING PHOTOGRAPHS

One original black-and-white negative and one good quality contact print of each negative (unless more are specified) are required.

Place each negative in a transparent sleeve, and put each sleeved negative with its contact print(s) in a standard brown kraft paper filing envelope for temporary film storage. Negatives and prints will be transferred to archival containers by HAER.

The photographer must provide *separate,* full, written identification for each image submitted, according to the following format:

1) **Site Name** (or **Record Name)**
2) Location (street address, city, county, and state)
3) **Brief Description** of view, including buildings, processes, compass orientation, etc.
4) **Day, Month,** and **Year** of view
5) **Photographer's Name**
6) Photographer's Firm (if any)

Shutter speeds and f-stops are not required.

Do not write these identifications on the backs of prints. (Most writing media will cause the prints to deteriorate.) Images can be linked to the list of identifications by writing match numbers on the list and on the transparent negative sleeves. *Do not write anything on the negatives themselves.* Put match numbers *in No. 1 pencil on the back edge* of each print and on the brown storage

envelopes. (Use of a drawing to further pinpoint camera stations and show directions of views may be helpful; key the camera stations to the negative match numbers.) Lastly, write the complete identification of an enclosed view on its envelope, but remove contents before writing so you don't crease them. ***Identification is essential to teams or HAER staff completing an Index to Photographs.***

NOTE: The identifications are not the same things as captions written for a project's Index to Photo-graphs for transmittal to the Library of Congress. The photographer should *not* prepare an Index to Photographs (HAER format) unless told to do so.

Organization

After the photographic coverage of a site has been processed and reviewed, all photographs--whether modem images, photocopied historic views, or line drawings--should be selected and put in a logical progression prior to numbering and captioning. Progressions might be chronological (by date), exterior to interior, by process sequence, or even category of image (line drawings might be grouped together, for example). In general, aerial and exterior views of a single structure should come first, followed by its interiors, and then its details. Call your supervisor or see ***Transmitting HABSIHAER Documentation*** for further guidance for complexes with multiple structures or sub-complexes.

The HAER Number

The HAER survey number for your site is the primary identifier for all negatives, prints, captions and other project materials. It consists of a two-letter state code abbreviation (same as that used by the U.S. Postal Service), followed by a hyphen and a project number: HAER No. MA-98, for example, is the number assigned to HAER records of the Bardwell's Ferry Bridge near Shelbume, Massachusetts. This number should *always* be preceded by "HAER No." in order to distinguish it from a HABS project with the same number. HAER numbers are assigned only by Collections Management (CMS) at WASO in order to avoid accidental duplication and consequent confusion with records of another site. Negatives, prints and captions are identified by adding a number suffix to the HAER number: HAER No. MA-98- 1, HAER No. MA-98-2, etc.

Numbering Negatives

Negatives should be labeled with a drafting pen *only on the glossy side, only on one of the clear margins,* never in the image area (see Fig. 3.2). Use only drafting ink rated for plastics (such as "Pelikan FT" or equivalent). The only exception applies to lithographic negatives ("line" or "litho negs") of historical drawings. Such negatives usually have no margins, so a portion of the darkened emulsion *outside the image area* should be erased and the HAER number inked on the glossy side over this cleared area.

TIP: When numbering continuous tone negatives, make sure the notches in the shorter edges are to your upper left.

MISTAKES: Numbering errors can be removed from negatives using a soft cloth or paper towel very *slightly moistened* with rubbing alcohol. Always wipe from the negative interior off the negative edge.

Negative Sleeves

Negative sleeves for transmittal to the Library of Congress are made of archivally stable buffered paper, and come in two sizes (5" x 7" or 8" x 10"). If your project is not supplied with these, leave numbered negatives in their temporary plastic sleeves for transmittal to HAER--the HAER office will transfer them to archival sleeves. Clear plastic sleeves need no labeling, *but they must be removed if you put negatives into archival sleeves.* Archival sleeves should be labeled only with the HAER photo number (e.g. MA-98-l) in No. 1 pencil (no ballpoint or drafting ink), or else typed (impact printed, not laser printed). See Fig. 3.2 for proper placement.

WARNING! *sleeves should never be labeled with the negatives inside, since creasing will result!*

Numbering Contact Prints

Contact prints should be numbered with corresponding HAER numbers on the *back side, on one edge only,* using only No. 1 pencil (no ballpoint or drafting ink) on a hard surface to prevent creasing. See Fig. 3.2.

Stamping and Mounting of Contact Prints

In most cases, this will be done by the National Park Service. If the task is yours, however, the backs of all prints should be marked by a rubber stamp and archival manuscript ink identifying the image as part of the HAER collection in the Library of Congress. When the stamped information is dry, prints are mounted in archivally stable 8 " x 1 1" cards with slits cut in to receive print comers (glue is prohibited). Large 8" x 10" prints are inserted into Mylar D sleeves along with numbered photo mount cards. The HAER number is lettered with No. 1 pencil or impact printed in the upper right comer of photo mount cards, underneath the pre-printed heading (see Fig. 3.3). If a pre-printed number is not present, the heading shown in Fig. 3.3 must be impact printed in the comer. (Though laser printed data is archivally stable on paper, it has proven not to be so on photo mount card stock.)

Index to Photographs

This is the caption listing for a project's large format photographic images, including photocopies. The standard format for the first page of the Index appears in Fig. 3.4. Successive pages need only a heading in the upper right comer in the standard format shown below:

Name of Project/Site
HAER No. XX-1
INDEX TO PHOTOGRAPHS
(Page X)

Captions should be descriptive, giving name of building, compass orientation, relative location on site, names of significant spaces, details, machinery or parts (see Fig. 3.4). Comments on the significance of photographed features is encouraged, as are cross-references to other photographs and photocopies, measured drawings, or the historical report. Identify any intrusions as such.

Photocopied photographs and other graphics should always be identified as such in captions. Pertinent information such as the *original* photographer's name, date, subject, location, size of original photograph, sources, etc. should be provided. For drawings, information such as sheet title, delineator's or designer's name, date, sheet number, location of original, etc. should be provided. The photocopying photographer's name is unnecessary. Copyright waivers should be noted where necessary. Restricted material cannot be included in the project record.

TIP: Wasteful repetition can be prevented by identifying all photographers and sources on the first page of the Index to Photographs and then assigning them initials to be used in appropriate photo captions (see Fig. 3.4).

3.9 REQUIREMENT FOR USAGE

All photographs and photocopies submitted to HAER become public domain property. Photographers may make duplicate original or copy negatives and prints for use of themselves or others, provided that a credit line (e.g., John Doe, Historic American Engineering Record [or HAER]) is used.

3.10 QUESTIONS CONCERNING PHOTOGRAPHY

Address questions concerning photography or photographic contracts to your contracting officer or to:

Jet Lowe, HAER Photographer
Jack E. Boucher, HABS Photographer

HABS/HAER (2270)
National Park Service
1849 C Street NW Room NC-300
Washington, DC 20240-2270

Express Courier Delivery:

HABS/HAER
National Park Service
800 North Capitol Street, NW
Suite 300
Washington, DC 20001

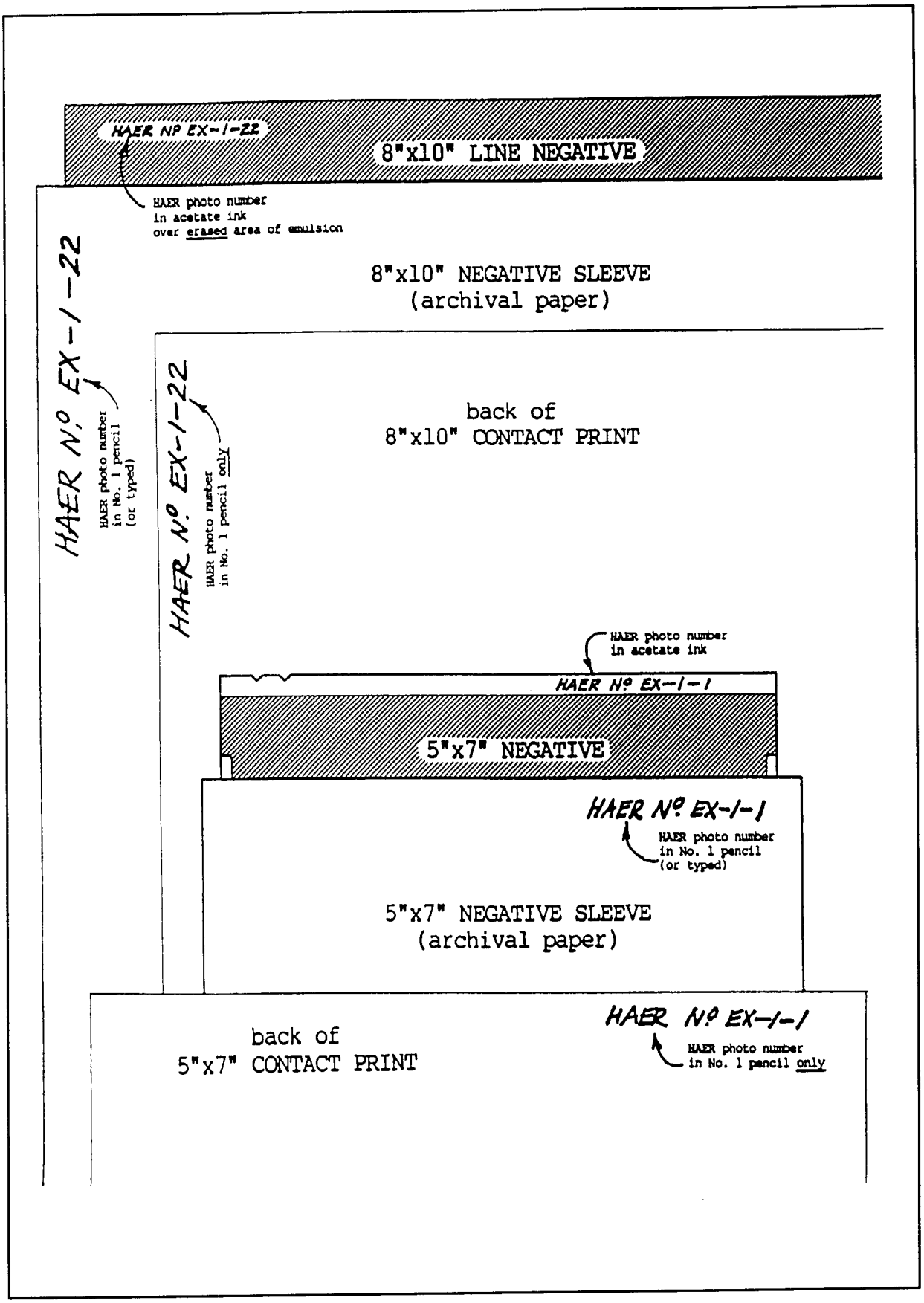
HAER Nº EX-1-22
8"x10" LINE NEGATIVE
HAER photo number
in acetate ink
over erased area of emulsion
8"x10" NEGATIVE SLEEVE
(archival paper)
HAER Nº EX-1-22
HAER photo number
in No. 1 pencil
(or typed)
HAER Nº EX-1-22
HAER photo number
in No. 1 pencil only
back of
8"x10" CONTACT PRINT
HAER photo number
in acetate ink
HAER Nº EX-1-1
5"x7" NEGATIVE
HAER Nº EX-1-1
HAER photo number
in No. 1 pencil
(or typed)
5"x7" NEGATIVE SLEEVE
(archival paper)
back of
5"x7" CONTACT PRINT
HAER Nº EX-1-1
HAER photo number
in No. 1 pencil only

Fig. 3.2

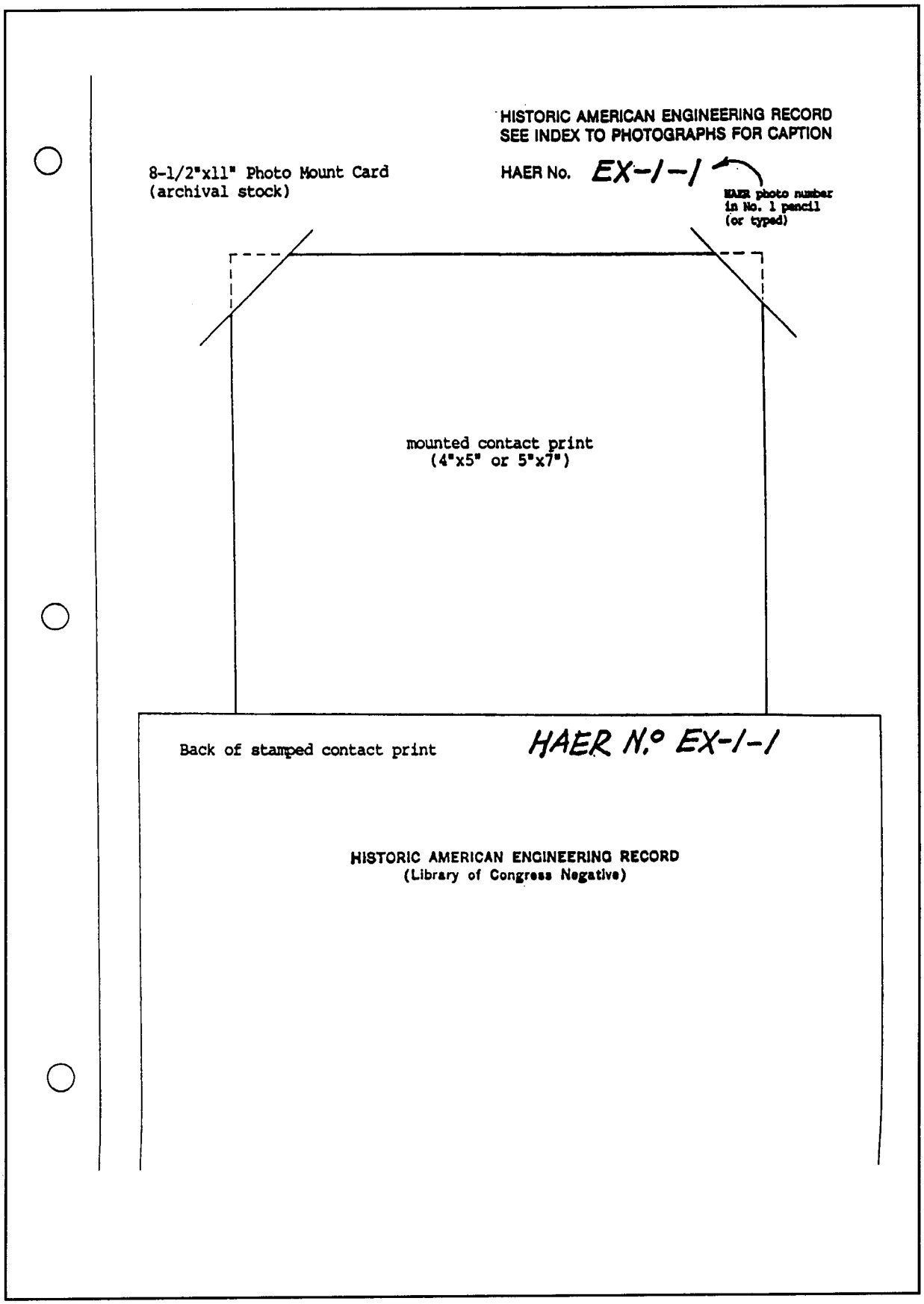
HISTORIC AMERICAN ENGINEERING RECORD
SEE INDEX TO PHOTOGRAPHS FOR CAPTION
8-1/2"x11" Photo Mount Card
(archival stock)
HAER No. EX-1-1
HAER photo number
in No. 1 pencil
(or typed)
mounted contact print
(4"x5" or 5"x7")
Back of stamped contact print
HAER N.° EX-1-1
HISTORIC AMERICAN ENGINEERING RECORD
(Library of Congress Negative)

Fig. 3.3

HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO PHOTOGRAPHS

MARSHALL SPACE FLIGHT CENTER, REDSTONE ROCKET TEST STAND
(Redstone Missile Test Stand)
(The Interim Test Stand)
(Marshall Space Flight Center, Building No. 4665)
Redstone Arsenal
Dodd Road
Huntsville
Madison County
Alabama

HAER No. AL-129-A

Photographs by Jet Lowe, Summer 1995

AL-129-A-1 GENERAL VIEW OF SITE LOOKING SOUTHWEST. JUPITER "HOP" STAND, FOREGROUND CENTER, REDSTONE TEST STAND FOREGROUND RIGHT, NOVA TEST STAND BACKGROUND LEFT.

AL-129-A-2 OBLIQUE VIEW OF THE REDSTONE ROCKET TEST STAND LOOKING NORTHWEST.

AL-129-A-3 VIEW OF THE REDSTONE ROCKET TEST STAND LOOKING WEST.

AL-129-A-4 OBLIQUE VIEW OF THE REDSTONE ROCKET TEST STAND LOOKING NORTHEAST.

AL-129-A-5 DETAIL VIEW OF THE STRUCTURE OF THE BASE OF THE TEST STAND AND THE TAIL SECTION OF A REDSTONE (JUPITER) ROCKET. NOTE THE FLAME DEFLECTOR BEHIND THE STRUCTURE IN THE FOREGROUND.

AL-129-A-6 CLOSE-UP VIEW OF THE TAIL SECTION OF THE REDSTONE (JUPITER) AND THE TRANSFER ASSEMBLY.

AL-129-A-7 DETAIL VIEW IN THE FLAME TRENCH LOOKING SOUTH INTO THE FLAME DEFLECTOR.

AL-129-A-8 DETAIL VIEW IN THE FLAME TRENCH LOOKING NORTH, FLAME DEFLECTOR IN THE FOREGROUND, WATER PIPES AND VALVE ASSEMBLIES ON THE FOREGROUND.

AL-129-A-9 DETAIL VIEW OF THE ROCKET TRANSFER CART. NOTE THE VALVE BOX IN THE FOREGROUND RIGHT WITH AN EYE WASH FAUCET PROJECTING OUT.

AL-129-A-10 OVERALL VIEW OF THE SITE, INSTRUMENTATION AND CONTROL TANKS IN FOREGROUND, ROCKET TEST STAND IN BACKGROUND LEFT.

AL-129-A-11 DETAIL VIEW OF THE EXTERIOR, EAST ELEVATION, OF THE INSTRUMENTATION AND CONTROL TANKS LOOKING SOUTHWEST.

AL-129-A-12 VIEW LOOKING SOUTHWEST AT THE EARTH MOUND USED TO ENCASE THE INSTRUMENTATION AND CONTROL TANKS AND PROTECT EQUIPMENT. NOTE THE TEST STAND IN THE BACKGROUND RIGHT.

AL-129-A-13 VIEW LOOKING NORTHEAST AT EARTH MOUND. NOTE THE RECTANGULAR OPENINGS USED FOR OBSERVATION EQUIPMENT AND PERISCOPE TOPS.

AL-129-A-14 GENERAL VIEW OF THE INTERIOR OF THE EXTREME NORTH CONTROL TANK SHOWING THE REMAINING PIECES OF EQUIPMENT USED DURING THE REDSTONE ROCKET TESTING PROGRAM.

AL-129-A-15 DETAIL VIEW OF THE WEST INTERIOR WALL OF THE EXTREME NORTH (CONTROL) TANK. NOTE THE TWO PERISCOPES IN THE UPPER PART OF THE PHOTOGRAPH. ALSO NOTE THE CONTROL PANEL IN THE MIDDLE OF THE PHOTO, THIS WAS USED TO CONTROL THE REMOTE "FIRE-EX" WATER NOZZLES.

AL-129-A-16 GENERAL VIEW OF THE INTERIOR OF THE CENTER INSTRUMENTATION AND CONTROL TANK, NOTE THE PASSAGE CUT TO THE EXTREME NORTH TANK.

Fig. 3.4